

## TC-TC

### THERMOCOUPLE ISOLATOR



- Provides an isolated thermocouple mV signal output from a non-isolated thermocouple
- High Accuracy, Low Cost
- Ultra compact DIN Rail Mount Enclosure
- Prevents earth loop & sensor failure problems in multi-thermocouple installations

#### Description

The TC-TC isolator accepts a mV signal from virtually any type of thermocouple and provides an identical isolated mV signal output.

Typically used where non-isolated thermocouples are monitored by a multi input channel device with no channel to channel isolation, the unit can eliminate earth loop effects and prevents the failure of one thermocouple affecting the other sensors.

Options include re-transmission of the mV input or the unit can perform CJC and linearization on the input mV.

The unit is housed in a DIN-Rail mounting enclosure which is just 12.5mm wide. It has two power supply options operating either from a 12 to 36Vdc supply or 90 to 264Vac supply.

A dual output unit is also available in a 17.5mm wide DIN rail box and can be used to provide a second, isolated mV output, or second high level output such as 4-20mA or 0-10Vdc, please specify TC-TC-Dual.

#### Inputs

Standard Ranges are shown below - contact Sales for others.

##### Thermocouples

Types E,J,K,N,R,S,T,B linearised or non-linearised

Ranges: A wide range of input ranges.

Cold junction compensation (can be turned off)

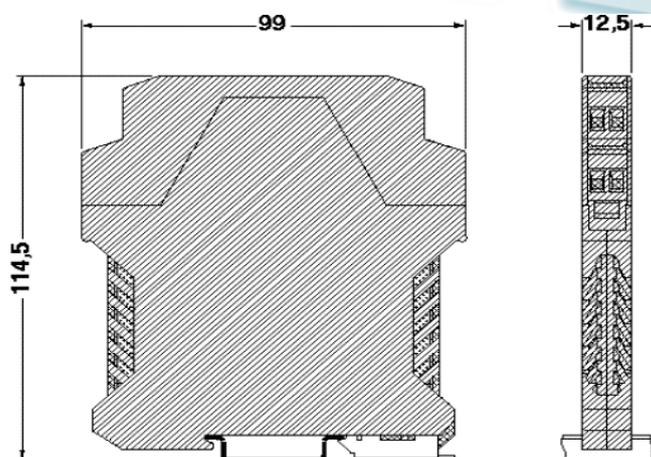
Upscale or downscale t/c burnout options

#### Outputs

Re-transmission of input value in mV  
Selectable linearisation options

## Technical Specifications

| Parameter                               | Min  | Typ           | Max                               | Comments  |
|---|--|---------------|-----------------------------------|---|
| Supply Voltage                          | 12   | 24V           | 36Vdc/32Vac                       | 90 to 264 for ac input version                  |
| Supply Current (mA)                     |  | 45            | 85                                | For 24 V dc supply (260mA for 50ms on start-up) |
| Input Impedance (Volt)                  |  | >10M $\Omega$ |                                   | Dependent on range (Typ=10V)                    |
| Output Linearity Error                  |  | $\pm 0.01\%$  | $\pm 0.05\%$                      |   |
| Temp Coefficient                        |  |               | $\pm 50\text{ppm}/^\circ\text{C}$ |   |
| Load Resistance Error                   |  |               | -                                 | Not applicable                                  |
| Time Constant (10-90%)                  | 25ms (fast)  | 60ms (normal) |                                   | Selectable fast/normal response                 |
| Operating Ambient                       | 0 $^\circ\text{C}$   |               | 55 $^\circ\text{C}$               |   |
| Relative Humidity                       | 0%   |               | 90%                               |   |
| Isolation Voltage <sup>see note 1</sup> | 1kV  |               |                                   |   |
| Surge Voltage                           | 2.5kV for 50 $\mu\text{s}$   |               | Transient of 10kV/ $\mu\text{s}$  |   |
| Notes                                   | Absolute maximum ratings indicate sustained limits beyond which damage to the device may occur.<br>Accuracy figures based on 24Vdc supply,<br>Device is protected against reverse polarity connection.<br>ISOCON does NOT provide safety isolation when the input is connected to the mains. |               |                                   |   |



### Installation data

|                             |                                 |
|-----------------------------|---------------------------------|
| <b>Mounting</b>             | DIN Rail TS35                   |
| <b>Orientation</b>          | Any                             |
| <b>Connections</b>          | Screw Clamp with pressure plate |
| <b>Conductor size</b>       | 0.5-4.0mm                       |
| <b>Insulation Stripping</b> | 12mm                            |
| <b>Weight</b>               | Approx 95g                      |

### Connection details

|     |                   |
|-----|-------------------|
| 1.  | Power Input -ve   |
| 2.  | Power Input +ve   |
| 4.  | Process Input -ve |
| 5.  | Process Input +ve |
| 6.  | T/C Shield        |
| 6.  | Output -ve        |
| 12. | Output +ve        |

### Ordering information

|                            |                            |
|----------------------------|----------------------------|
| <b>Please supply:</b>      |                            |
| <b>Part Number:</b>        | II-TCTC-6-TJJJ-J-000       |
| <b>Input Type:</b>         | e.g Type K T/C             |
| <b>Input Range:</b>        | e.g 0-500 $^\circ\text{C}$ |
| <b>Power Supply:</b>       | -6 (DC) or -3 (AC)         |
| <b>Isolation:</b>          | Full 3-Port                |
| <b>Options</b>             | Linearisation / CJC        |
| <b>Dual Output Version</b> | TC-TC-Dual                 |